WHITEMAN, OSTERMAN & HANNA
OCCIDENTAL CHEMICAL CORPORATION
FORMER RUCO DIVISION PLANTSITE
HICKSVILLE, NEW YORK

RESULTS OF SOILS INVESTIGATION IN THE VICINITY OF THE PILOT PLANT THERMINOL SPILL

Prepared For

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CONCLUSIONS

1. The vertical extent of Aroclor 1248 (PCB) in the soil has been defined. Except for the area within 15 feet of the actual spills, the occurrence of PCB at levels in excess of 50 mg/kg (milligrams per kilogram) is confined to the upper few feet of the soil profile.

2. The areal extent of PCB occurrence has been defined except in a small area to the west of the pilot plant and in the soils around the drainage pipe.

3. With the exception of the soils around the drainage pipe on the east side of the pilot plant and a small patch of grass at the western corner, the entire spill area is paved over with asphalt and is, therefore, isolated from the environment.

INTRODUCTION

An initial soils investigation was completed in June of 1983 resulting in the definition of the vertical extent of therminol contamination in the spill area. A second phase of soil sampling, completed in March 1985, further defined the areal extent of the problem but did not reach the limits of shallow soil contamination. A third round of samples was obtained in February 1986 to further define the extent of PCB occurrence.

The first two sampling episodes were described in a September 1984 report entitled "Report of Ground-Water and Soils Investigation at the Former Ruco Division Plantsite, Hicksville, New York" and in a December 1985 Progress Report. This report summarizes the results of all of the sampling and analyses done to date.

SAMPLING METHODOLOGY - 1986

The earlier investigations had revealed that PCB contamination at distances greater than 15 feet from the spill site was confined to the upper two feet of soil. Therefore, the third round of samples were obtained manually from holes which extended no more than two feet below the asphalt pavement or the ground surface. The hole opening equipment was cleaned between uses with hexane and grab samples were taken using clean, disposable gloves. All holes were backfilled and repaved with cold patch asphalt.

ANALYTICAL TESTING AND QUALITY ASSURANCE

The twelve soil samples and the field background blank were analyzed for PCB's by Environmental Testing and Certification (ETC), Edison, New Jersey. The method employed was EPA 8080 from "Test Methods for Evaluating Solid Waste", July 1982. The only modification was an increase in column oven temperature from 200 to 220°C. Sampling took place on February 26 and 27, 1986, and the samples were extracted on March 4, which was within the maximum holding time. They were analyzed during the period from March 11 to 19, 1986. The analytical reports are presented in the Appendix.

All the samples contained Aroclor 1248 and no other Aroclor was detected. The background blank was selected for the replicate and spiked analysis sample. The first analysis of the blank showed 0.41 ug/g (micrograms per gram) of

Aroclor 1248, but Aroclor 1248 was not detected in the second (replicate) analysis suggesting that laboratory contamination may have caused the first result. The blank was spiked with 0.185 ug/g of Aroclor 1248, the amount detected in the sample was less than 0.41 ug/g, therefore the recovery was reported as 0 percent. When the replicate result was used for the recovery calculation an acceptable recovery was obtained.

It was decided to reanalyze three samples and the background blank, in order to reassess the quality control data for the batch. Samples from Sites I, Q and R were selected. The results for Samples I and R duplicated the first set of data. The second result from Sample Q was two times the first result, this could be explained by sample inhomogeneity. The background blank was selected as the sample for spiked and replicate analysis. Aroclor 1248 was not detected in either of the two replicate samples, the percent recovery of the spike was 92 percent.

All sample results were considered acceptable, after review of the reanalysis data.

ANALYTICAL RESULTS

The physical descriptions and analytical results for the 1983 sampling are presented on figure 1; for 1985 the data are presented on figure 2; and for 1986 the data are presented on table 1. All of the data are summarized on figure 3.

Figure 3 shows the areal extent of soils containing PCB's in excess of 50 mg/kg (milligrams per kilogram). The areal and vertical extent of PCB occurrence has been defined in most areas. The unexpected occurrences of PCB's at sampling locations Q and R, which appeared to be clean soil,

leave the limits of the contamination undefined in this direction. Similarly, it is unknown if the soils around the drainage pipe northeast of sampling location I contain PCB's.

TEST HOLES

In order to reduce the analytical effort, test holes were employed to aid in the problem area definition. The locations of the test holes are shown on figure 3; the descriptions of materials encountered are presented on table 2.

Test Hole 1 (TH-1) appeared to be unaffected by PCB's which was confirmed by the results at sample locations O, N and P. Test Holes 2, 3, 4 and 5 encountered soil with oil, and it was assumed that they could contain PCB's at levels above 50 mg/kg. Test Holes 6 and 7 contained no visual contamination.

RECOMMENDATIONS

In order to fully define the extent of the contaminated soil in the area samples should be collected as follows and as shown on figure 4:

1. collect two soil samples around the storm drain prior to its outlet at the storm drainage recharge basin;
2. collect three soil samples from the apparent high water mark on the sides of the recharge basin; and,
3. collect shallow soil samples to the southwest of the pilot plant, as shown on figure 4. Samples R-1, R-2, Q-1 and Q-2 should be analyzed for

PCB's. If levels in excess of 50 mg/kg are detected in one or more of these samples, the next two samples nearest to the affected location(s) should be analyzed.

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Robert Lamonica

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Senior Associate

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January 22, 1987
r1863a

OCCIDENTAL CHEMICAL CO.
RUCO POLYMER CORPORATION SITE
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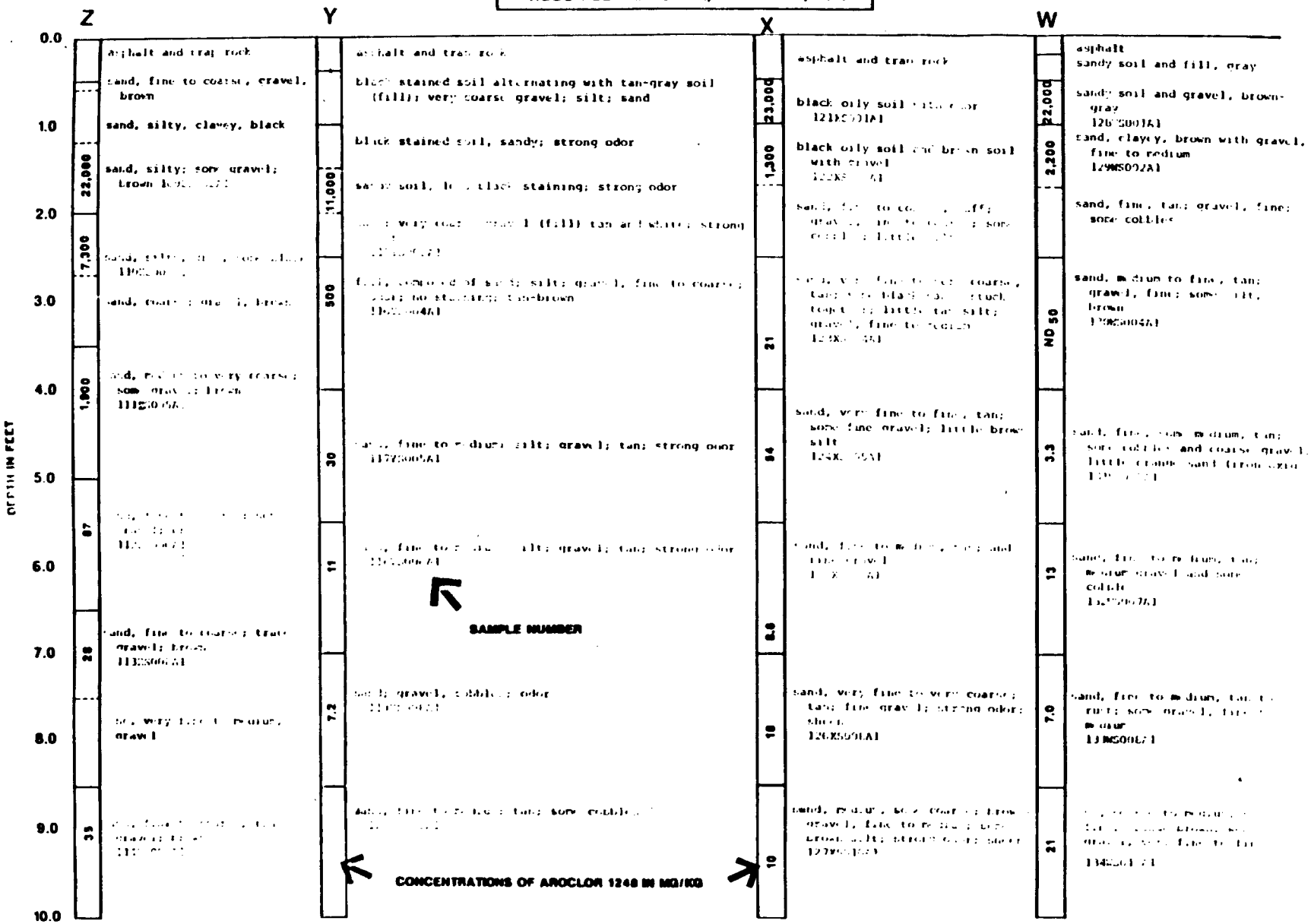
SOIL BORING AND SAMPLE DESCRIPTIONS IN THE VICINITY OF THE PILOT PLANT, RUCO POLYMER CORP., HICKSVILLE, N.Y.



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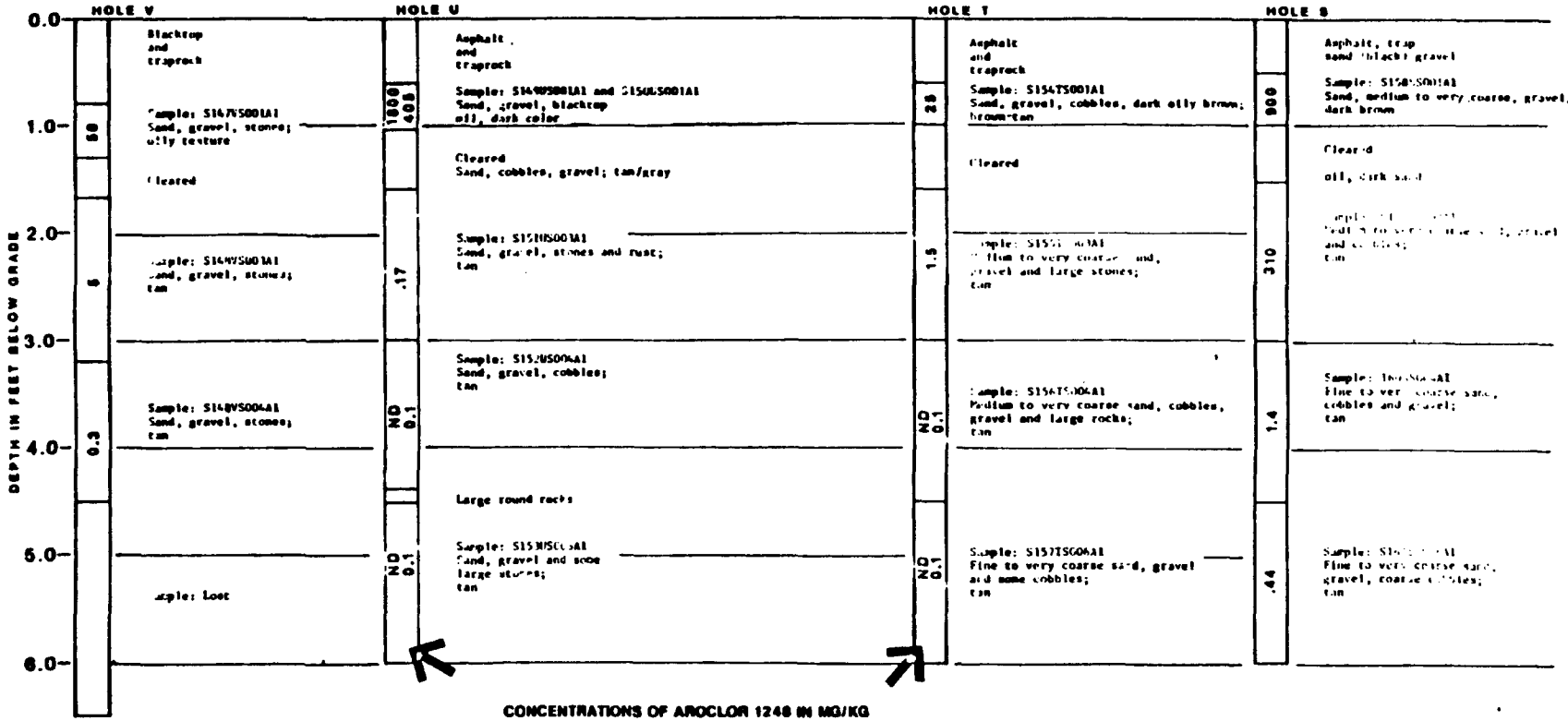

CONCENTRATIONS OF AROCLOR 1248 IN MG/KG

FIGURE 2

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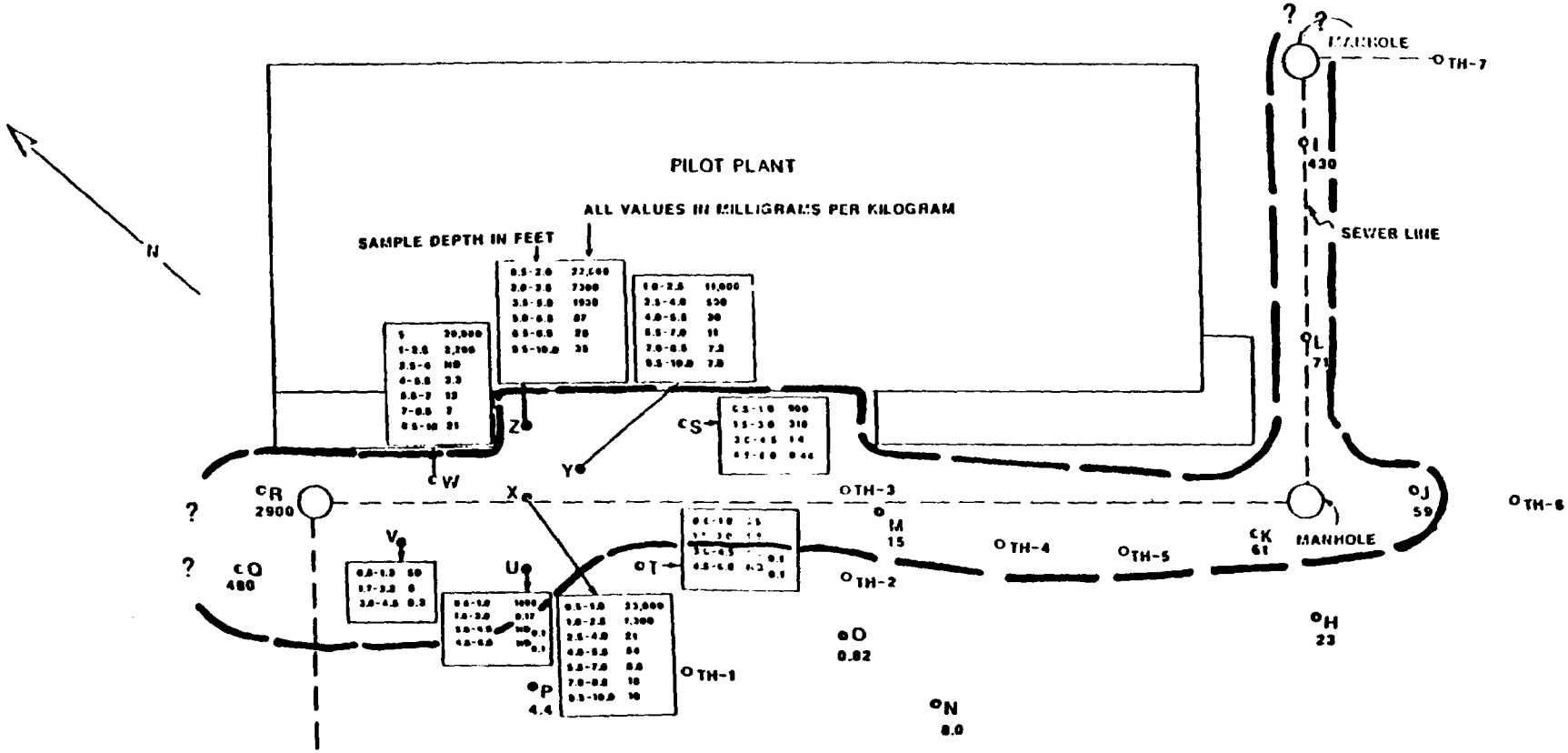

AREAL EXTENT OF SOILS CONTAINING AROCLOR 1248 IN EXCESS OF 50 MILLIGRAMS PER KILOGRAM

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THERMINOL SPILL AREA

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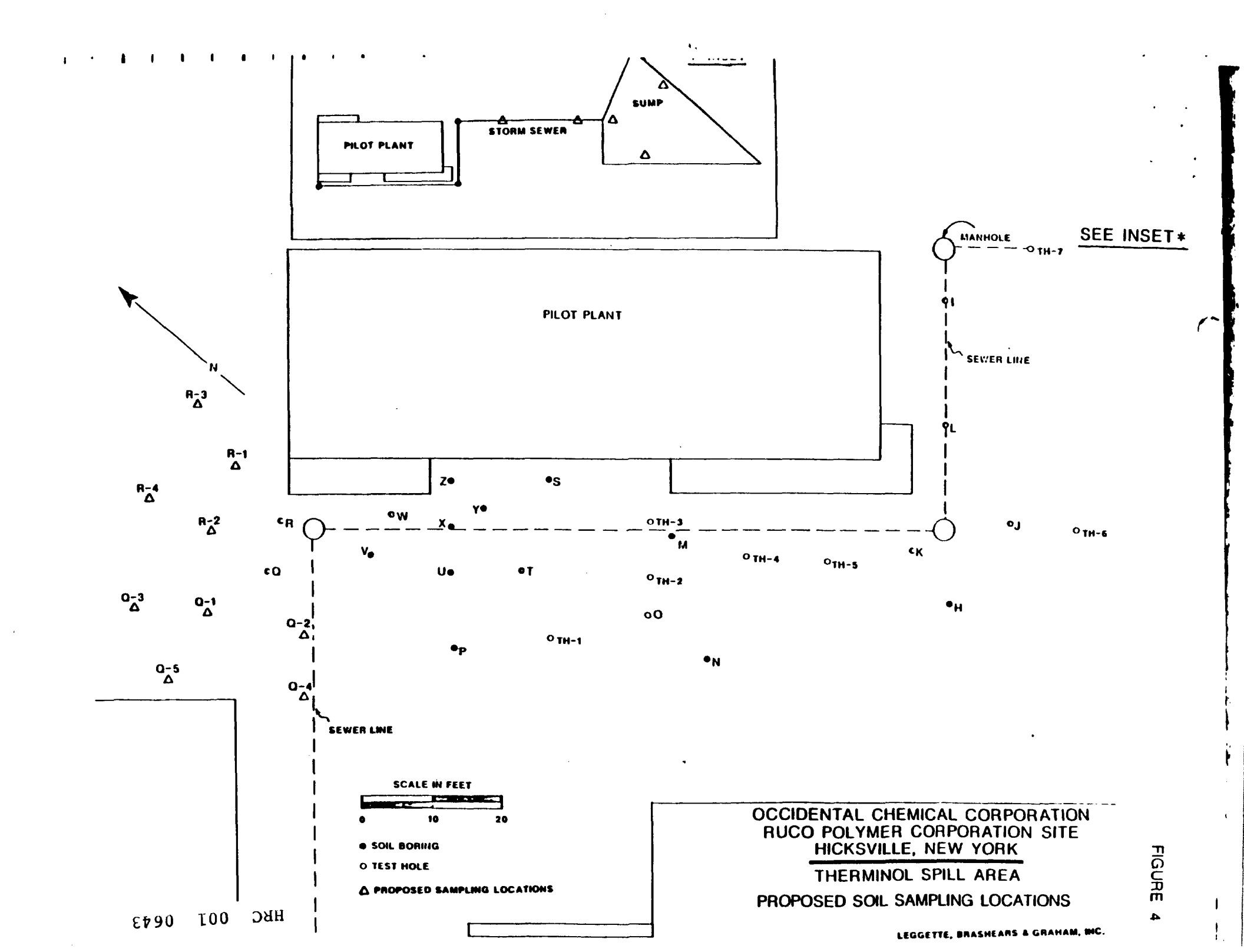
FIGURE 3


SUMP
STORM SEWER
PILOT PLANT
PILOT PLANT
MANHOLE
TH-7
SEE INSET*
SEWER LINE
N
R-3
R-1
R-4
R-2
Q-3
Q-1
Q-2
Q-5
Q-4
SEWER LINE
I
L
Z
S
Y
W
X
R
TH-3
J
TH-6
M
V
K
TH-4
TH-5
Q
U
T
TH-2
H
O
TH-1
P
N
SCALE IN FEET
0
10
20
SOIL BORING
TEST HOLE
PROPOSED SAMPLING LOCATIONS
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THERMINOL SPILL AREA
PROPOSED SOIL SAMPLING LOCATIONS
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FIGURE 4
HRC 001 0643

TABLE 1

OCCIDENTAL CHEMICAL CORPORATION
RUCO POLYMER CORPORATION SITE
HICKSVILLE, NEW YORK

Record of Soil Sampling
February 1986

Sample location	Sample designation	Sample depth (ft)	Description	PCB concentration (mg/kg)
R	178RS001A1	0 - 1.1	sand, gravel, some silt; tan	2,900/2,710
Q	179QS001A1	0.4 - 1.0	0.0 - 0.4 asphalt and trap rock 0.4 - 0.6 soil; black 0.6 - 1.0 sand and gravel; tan	480/1,060
P	180PS001A1	0.4 - 1.0	0.0 - 0.4 asphalt and trap rock 0.4 - 1.0 sand, some silt and gravel; tan-gray	4.4
O	181OS001A1	1.6 - 1.9	0.0 - 0.4 asphalt and trap rock 0.4 - 1.0 sand, black, odor 1.0 - 1.9 sand and gravel; tan no odor	0.82
N	182NS001A1	0.7 - 0.85	0.0 - 0.4 asphalt and trap rock 0.4 - 0.85 sand, silt, gravel; brown	8.0
M	183MS001A1	1.5 - 1.7	0.0 - 0.4 asphalt and trap rock 0.4 - 1.7 sand and gravel; tan-orange brown	15
L	184LS001A1	1.1	0.0 - 1.1 topsoil and sand 1.1 - 1.4 silt and sand with oil; odor 1.4 drain pipe	71
K	185KS001A1	0.9	0.0 - 0.4 asphalt and trap rock	61
	186KS002A1	1.7 - 1.8	0.4 - 0.9 sand, silt, gravel; black; odor 0.9 - 1.8 sand and gravel; tan	0.22
J	187JS001A1	0.4 - 1.0	0.0 - 0.4 asphalt and trap rock 0.4 - 1.0 silt and sand, black; faint oil odor 1.0 - 1.4 sand and gravel, tan	59

TABLE 1
(continued)

OCCIDENTAL CHEMICAL CORPORATION
RUCO POLYMER CORPORATION SITE
HICKSVILLE, NEW YORK

Record of Soil Sampling
February 1986

Sample location	Sample designation	Sample depth (ft)	Description		PCB concentration (mg/kg)
I	188IS001A1	0.2 - 1.5	0.0 - 0.2	topsoil	430/357
			0.2 - 1.5	fill of sand, silt, gravel; some plastic and metal	
H	189HS001A1	0.4 - 0.7	0.0 - 0.4	asphalt and trap rock	23
			0.4 - 0.7	sand and gravel, black, no odor	
			0.7	sand and gravel, tan	
G	190GS001A1	0.0 - 0.5	0.0 - 0.5	topsoil and loam	0.41/ND* 0.1

* Not detected.